DOCUMENT RESUME

ED 303 239 PS 017 701

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TITLE The Reliability and Validity of a Scale To Measure Teachers' Attitudes toward Integration, in an Australian Context.
PUB DATE 88
NOTE 20p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Attitude Measures; *Construct Validity; Disabilities; Elementary Education; Elementary School Teachers; *Factor Structure; Foreign Countries; *Mainstreaming; *Reliability; *Teacher Attitudes
IDENTIFIERS *Australia

ABSTRACT

This paper investigated the reliability and construct validity of a 30-item scale in measuring the attitudes of teachers in Australia toward the integration of handicapped children into regular schools. The Attitude Toward Mainstreaming Scale, which was designed by Larrivee and Cook (1979), has been used in evaluation studies in the United Sates and Australia. While the scale has been shown to be reliable, results concerning the factor structure of the scale have differed. In the present study, responses of a sample of 301 primary school staff were factor analysed to determine the scale's factorial validity. The scale was found to have an underlying conceptual framework of five factors, which could be used to investigate various aspects of a teacher's attitude toward integration. Factors were: (1) general philosophy of integration; (2) teacher expertise; (3) demands on teacher time; (4) academic expectations; and (5) behavioral expectations. The psychometric characteristics of the scale indicate that it is both reliable and factorially valid in an Australian context, and that it is valid to make comparisons between American and Australian data using the scale. (Author/RH)

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The Reliability and Validity of a Scale to Measure Teachers' Attitudes Toward Integration, in an Australian Context.

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PS 017904

The Australasian Journal of Special Education, 1988, 12(2), 31-37.

Running Head: TEACHERS' ATTITUDES TOWARD INTEGRATION

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Abstract

This paper investigates, in an Australian context, the psychometric properties of reliability and construct validity of a scale to measure the attitudes of teachers toward the integration of handicapped children into regular schools. The responses of a sample of 301 primary school staff were factor analysed to determine the factorial validity of the 30 item scale. The scale was found to have an underlying conceptual framework of five factors, which could be used to investigate various aspects of a teacher's attitude toward integration. The psychometric characteristics of the scale indicate that it is both reliable and factorially valid in an Australian context and that it is valid to make comparisons between American and Australian data using the scale.

The integration of mildly handicapped children into regular schools has been recommended by both State and Federal governments throughout Australia for a number of years, (e.g., Beasley, 1984; Collins, 1984), and the practice of integration is becoming increasingly common in Australian schools. However, issues surrounding integration have remained controversial. Studies investigating the efficacy of integration as an educational option for disabled students have produced inconclusive and at times confusing results. Gresham (1982) suggests that there is no evidence to indicate that integrated students improve in either social or academic outcomes in mainstream settings. However, other investigators, such as Kaufman, Agard and Semmel (1985) have found that certain groups of students, including those with mild intellectual disabilities, perform better in the regular school setting.

Johnson and Johnson (1986) have stressed the role that regular school staff have to play in facilitating positive social outcomes for integrated mildly disabled students. Hence it becomes important to investigate the attitudes of school staff toward the process of integration for the purposes of evaluating the success of integration programs.

There are a number of instruments currently available for investigating teachers' attitudes toward integration, (e.g., Berryman & Neal, 1980; Reynolds & Greco, 1980). However, few

scales have been investigated thoroughly for psychometric properties such as reliability and validity. Also studies that have investigated these important properties have invariably been carried out in the United States, and few Australian data have been available.

The Attitude Toward Mainstreaming Scale (ATMS) designed by Larrivee and Cook (1979) is one scale which has been used in evaluation studies in both the United States, (Larrivee, 1981) and Australia, (Hudson & Cluniés-Ross, 1984; Roberts & Pratt, 1987). The ATMS is a 30-item questionnaire, which respondents are asked to complete by indicating the extent of their agreement or disagreement with each statement using a 5-point Likert-type scale. Larrivee and Cook (1979) found the scale to have a split-half reliability of .92 and Green, Rock & Weisenstein (1983) reported an internal consistency coefficient of .89.

While the scale has been shown to be reliable, by investigators in the United States, (Green et al., 1983; Larrivee, 1982), results concerning the factorial structure of the scale have been conflicting. Larrivee (1982) investigated the underlying conceptual framework of the scale using a principal components factor analysis. She found that by retaining 26 of the original 30 item scale, five factors accounted for a significant proportion, (52.4%), of the variance. These five factors were:

1. A general philosophy of mainstreaming - 8 items
2. Classroom behaviour of special needs children - 6 items
3. Perceived ability to teach the special needs child - 4 items
4. Classroom management with special needs children - 4 items
5. Academic and social growth of the special needs child - 4 items

Green et al. (1983) also investigated the conceptual framework of the ATMS with a sample of 168 student teachers. Using the same factor analytic technique as Larrivee (1982), these investigators found a different factor structure. They suggested that a single major factor and seven minor factors accounted for a significant but unreported amount of the variance.

Green et al. (1983) also found support for the construct validity by way of significant correlations with other questionnaires measuring attitudes toward handicapped individuals, (Schmelkin, 1981), and teachers' willingness to accept handicapped children into their classes.

Although the scale has been adapted to include Australian terms and has been used to investigate the attitudes towards integration of Australian teachers toward integration, (Hudson & Cluniés-Ross, 1984; Roberts & Pratt, 1987), there is no published

investigation of the psychometric properties of the scale in an Australian setting.

The aim of the current study therefore, was to investigate the psychometric properties of reliability and construct validity of the ATMS in an Australian context, in order to determine whether the scale is appropriate for use in Australia.

Method

Subjects

Three hundred and one school principals, regular and educational support (special education) teachers, student teachers and teacher aides from one of the four State education department regions in the Perth metropolitan area participated in the study. The teachers and other school staff were employed in 18 regular state primary schools and in educational support centres attached to six of these schools. The sample was selected from the population of schools in the region, with the restriction that there was a proportional representation of regular primary schools and schools with educational support facilities attached. Details of the subject population and the types of schools surveyed can be found in Table 1.

Insert Table 1 here

The Questionnaire

The AIMS was constructed by Larrivee & Cook (1979) by the method of summated ratings. The scale design was initially guided by eight hypothesised dimensions of teacher attitude toward integration. The dimensions comprised the following attitudes toward:

1. Education in general.
2. The philosophy of integration.
3. The effect of regular class placement on the social, emotional and cognitive development of the special needs child.
4. The effect of integration on the social, emotional and cognitive development of the non-disabled child.
5. The special needs child's classroom behaviour.
6. The special needs child's cognitive functioning.
7. Parents of special needs children.
8. Perceived ability to teach the special needs child.

A factor analytic investigation of the scale revealed a conceptual framework of five factors as noted previously, (Larrivee, 1982).

The Australian adaption of the scale, as used in the present study is presented in full in Hudson & Glynes-Ross (1984).

School staff members were asked to complete the Australian adaption of the ATMS plus a single item question, "Do you agree with the concept of integrating special needs children into regular classrooms ?", to which respondents were required to give a yes/no answer. This single item question represented a global measure of attitude toward integration. It was included to further investigate the construct validity of the ATMS by assessing the correlation between this single item and the total scale. Respondents were also required to complete a series of six questions related to their position in the school and a number of other institutional variables to provide background details of the sample.

Procedure

Following full discussion of the procedure with each principal, 376 questionnaires were mailed to the principals of the 18 selected schools, for distribution to all teachers at the school, and completion in July 1986. Principals were then requested to return them in a postage paid envelope provided. Of the 18 schools sampled, all returned questionnaires. A total of 317 questionnaires were returned of which 16 were disgarded because of incomplete data. Hence 80% of the questionnaires sent were

included in the analysis.

Results and Discussion

In order to determine the psychometric properties of the AIMS in an Australian context, the reliability and construct validity of the 30-item scale were investigated. The construct validity was investigated by way of a factor analysis to determine the factorial validity of the scale and also by examining correlations between the AIMS and the single item question.

The internal reliability coefficient (Cronbach alpha, Cronbach, 1951), for the 30-item scale was .91, a result which is comparable with the results of previous investigators, (Green et al., 1983; Larrivee & Cook, 1979).

The responses of the 301 respondents were subjected to a Maximum Likelihood factor analysis (Kim & Meuller, 1978). The first five factors resulting from this analysis had eigenvalues greater then one and accounted for 55% of the total variance and 46% of the common variance. These five factors were retained and rotated both orthogonally and obliquely using the BMDP statistical package (Dixon 1981). Since the factors were found to be correlated, (values ranged from between .16 and .48), the oblique solution, (direct quartimin), was used in the selection

of items for the projected five dimensions.

Items loading at least .35 on one factor and less then .35 on all other factors were considered for inclusion in a given subscale. Minimal representativeness of the items across other factors was also used as criteria for iter selection. The five factors, which included 22 of the original 30 items, are listed below:

1. General philosophy of integration - 8 items
2. Teacher expertise - 4 items
3. Demands on teacher time - 3 items
4. Academic expectations - 4 items
5. Behavioural expectations - 3 items

Table 2 shows the rotated factor loadings for the five factors above and the squared multiple correlations (SMC) of each factor with the items. The squared multiple correlations indicate the importance of the factor after oblique rotation.

The five subscales showed reliabilities of between .85 and .58. All subscales correlated significantly with the total scale score, (greater then .62). The reliability of the 22 items taken in total was .90, (Cronbach alpha internal consistency coefficient).

Insert Table 2 here

The five rotated factors were closely related to the dimensions of attitudes toward mainstreaming originally proposed by Larrivee (1982). The first factor contained items focusing on both social and academic aspects of integration, for example, "Integrating the handicapped child promotes his/her social independence" and, "The challenge of being in a normal classroom will promote the academic growth of the child". This factor was almost identical to Larrivee's (1982) first factor, "General philosophy of mainstreaming". The scale of seven of the individual items loading on this factor (excluding item number 15), was reversed so that a high score on this subscale indicated a positive attitude toward integration. This factor alone accounted for 33% of the common variance of the scale, indicating its significance as a factor in teacher's overall attitude toward integration.

Factor two included items focusing on the expertise and ability of regular class teachers to teach handicapped children within their regular class, for example, "Normal classroom teachers have sufficient training to teach children with

handicaps". This factor resembled Larrivee's (1981) third factor, "Perceived ability to teach the special needs child". As with factor one, the scales of several of the items loading on this factor, (items numbers 16,8 and 1), were reversed so that a high score represented a positive attitude to integration. Factor two accounted for 4.87% of the common variance.

The third factor reflected the extra demand that integration could place upon teachers' time and organization. An example of an item loading on this subscale was "The extra attention handicapped students require is a detriment to the other students". Items loading on this factor were contained in Larrivee's (1982) factor four, "Classroom management and special needs children", although her factor was more inclusive then the present one. A low score on this scale reflected a negative attitude toward integration. Factor three accounted for 3.17% of the common variance.

Factors four and five both focused on statements concerning expectations of the integrated handicapped child. Factor four reflected negative academic expectations for integrated handicapped children, for example, "Most handicapped children do not make an adequate attempt to complete assignments.". Factor five reflected negative behavioural expectations for these children, for example, "The behaviour of handicapped students sets a bad example for the other students". While the items

included in factor five comprised a small subset of those in Larrivee's (1982) second factor, "Classroom behaviour of special needs children", the items included in the current factor four reflected a mixture of items from her fourth and fifth factors. The scale of item 14 was reversed so that low scores on both these subscales represented a negative attitude toward integration. Factors four and five accounted for only small proportions of the common variance of the total scale, 2.56% and 2.39% respectively.

The correlations between the five factor subscales and the single item question ranged between .57 (factor 1) and .34 (factor 5), as shown in Table 3. All correlations were significant at the .01 level. The total of the 30 item scale also showed a significant positive correlation with this item, ($r(301)=.62$, $p<.01$).

Insert Table 3 here

These results indicate that the Australian adaption of the ATMS as a measure of teachers' attitudes toward integration has reliability within an Australian context. The factor analysis suggests that the scale has factorial validity for use within and Australian context. Also the factor structure determined within

the present study is sufficiently similar to that found by Larrivee (1982) to suggest that the conceptual basis of the scale is sound, and that it is valid to make comparisons between American and Australian data using this scale.

Cautions should however be made with regard to the sample used within the current study. All respondents of the questionnaire were employed in State government primary schools. Hence generalizations should not be made to schools in the private sector which may have a different philosophy to the concept of integration, nor should generalizations be made to secondary schools where variables may have different levels of priority.

In summary, the ATMS would appear to be a useful tool for the evaluation of the attitudes of teachers and other school staff, toward the integration of mildly handicapped children into regular schools. The total 30 item scale which was found to be more reliable then the sum of the five subscales, (22 items), can be used to determine the nature of a teacher's attitude toward integration. The five subscales determined in the above factor analysis can be used when considering various aspects of a teacher's attitude toward integration, highlighting particular problem areas or areas important for change.

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Table 1

Details of Total Sample

Institutional Variable	N	Percentage
Position		
Principal	11	4
Regular Class Teacher	245	81
Educational Support Teacher	35	12
Teacher Aides	11	4
Type of School		
Regular School	191	63
Regular School + Educational Support Facilities	111	37
Grade Level Taught		
No Classes	14	5
Junior Primary (1-3)	84	28
Middle Primary (4-5)	40	13
Senior Primary (6-7)	57	19
More then one Grade	78	26
Special Classes*	25	8
Class Size		
No Classes	12	4
Less than 10	9	3
10 - 14	11	4
15 - 19	5	2
20 - 24	17	6
25 - 29	89	30
30 - 34	116	39
More than 35	27	9

* Only 25 of the 35 educational support teachers were involved in teaching special classes. The other 10 educational support teachers taught in regular classes alongside the regular class teacher.

Table 2

Rotated Factor Loadings for 22 Items.
Factor Loadings Greater than .35 are Shown in Bold

Item Number	Factor 1	2	3	4	5	SMC for Each Factor
30.	**.779**	.008	.027	.091	-.104	
18.	**.693**	-.041	-.027	-.085	.015	
6.	**.640**	.018	.085	.035	-.207	
10.	**.606**	-.014	-.198	.053	.158	.882
28.	**.567**	.150	-.248	.038	-.006	
21.	**.546**	-.003	-.077	-.102	-.181	
4.	**.531**	.142	.057	-.135	.028	
15.	**-.375**	.020	.051	.127	.260	
16.	-.147	**.850**	-.032	-.030	-.016	
27.	-.031	**-.685**	.239	-.065	-.009	.847
8.	.055	**.676**	.051	.039	-.110	
1.	.255	**.358**	.034	-.126	.111	
17.	-.147	-.222	**.590**	.049	.089	
5.	-.078	-.060	**.555**	.153	.098	.802
3.	-.006	.029	**.394**	.192	.060	
22.	.046	.108	.051	**.571**	.018	
24.	.019	-.131	-.003	**.485**	.113	.754
12.	.018	-.022	.070	**.474**	.091	
11.	-.265	.054	.058	**.397**	-.178	
9.	-.176	-.081	.086	.225	**.415**	
14.	.147	.139	-.054	-.098	**-.414**	.673
7.	-.210	-.024	.310	.042	**.498**	

Table 3

Factor Score Correlations with Single Item Question

	Factor 1	2	3	4	5
Single Item Question	.57**	.40**	.45**	.34**	.36**

**significant at $p < .01$